Dracunculiasis

(dra-KUNK-you-LIE-uh-sis)

Guinea Worm Disease

What is dracunculiasis?

Dracunculiasis, more commonly known as Guinea worm disease (GWD), is a preventable infection caused by the parasite *Dracunculus medinensis*. Infection affects poor communities in remote parts of Africa that do not have safe water to drink.

Currently, many organizations, including The Global 2000 program of The Carter Center of Emory University, UNICEF, Centers for Disease Control and Prevention (CDC), and the World Health Organization (WHO) are helping the last 12 countries in the world (all in Africa) to eradicate the disease. Since 1986, when an estimated 3.5 million people were infected annually, the campaign has eliminated much of the disease.

In 2003, only 32,193 cases of GWD were reported. Most (63%) of those cases were from Sudan where the ongoing civil war makes it impossible to eradicate the disease. All affected countries except Sudan are aiming to eliminate Guinea worm disease as soon as possible.

How does Guinea worm disease spread?

Adult female *Dracunculus* worms emerge from the skin of Infected persons annually. Persons with worms protruding through the skin may enter sources of drinking water and unwittingly allow the worm to release larvae into the water. These larvae are ingested by fresh water copepods (“water fleas”) where these develop into the infective stage in 10-14 days. Persons become infected by drinking water containing the water fleas harboring the infective stage larvae of *Dracunculus medinensis.*

Once inside the body, the stomach acid digests the water flea, but not the Guinea worm. These larvae find their way to the small intestine, where they penetrate the wall of the intestine and pass into the body cavity. During the next 10-14 months, the female Guinea worm grows to a full size adult 60-100 centimeters (2-3 feet) long and as wide as a cooked spaghetti noodle, and migrates to the site where she will emerge, usually the lower limbs.

A blister develops on the skin at the site where the worm will emerge. This blister causes a very painful burning sensation and it will eventually (within 24-72 hours) rupture. For relief, persons will immerse the affected limb into water, or may just walk in to fetch water. When someone with a Guinea worm ulcer enters the water, the adult female releases a milky white liquid containing millions of immature larvae into the water, thus contaminating the water supply. For several days after it has emerged from the ulcer, the female Guinea worm is capable of releasing more larvae whenever it comes in contact with water.

What are the signs and symptoms of Guinea worm disease?

Infected persons do not usually have symptoms until about 1 year after they become infected. A few days to hours before the worm emerges, the person may develop a fever,

swelling, and pain in the area. More than 90% of the worms appear on the legs and feet, but may occur anywhere on the body.

People, in remote, rural communities who are most commonly affected by GWD do not have access to medical care. Almost invariably the skin lesions caused by the worm develop secondary bacterial infections, which exacerbate the pain, and extend the period of incapacitation to weeks or months-causing in some cases disabling complications, such as locked joints and even permanent crippling. Each time a Guinea worm emerges, persons may be unable to work or resume daily activities for an average of 3 months. This usually occurs during planting or harvesting season, resulting in heavy crop losses. Parents who have active GWD may not be able to care for their children. They also cannot tend or harvest or crops, which leads to financial problems for the entire family.

What is the treatment for Guinea worm disease?

Once the worm emerges from the wound, it can only be pulled out a few centimeters each day and wrapped around a small stick. Sometimes the worm can be pulled out completely within a few days, but this process usually takes weeks or months.

No medication is available to end or prevent infection. However, the worm can be surgically removed before an ulcer forms. Analgesics, such as aspirin or ibuprofen, can help reduce swelling; antibiotic ointment can help prevent bacterial infections.

Where is Guinea worm disease found?

Dracunculiasis now occurs only in 12 countries in sub-Saharan Africa. Transmission of the disease is most common in very remote rural villages and in areas visited by nomadic groups. In 2003 the three most endemic countries, i.e., Sudan, Ghana, and Nigeria reported 20,299, 8,290, and Nigeria 1,459 cases of GWD. Other endemic countries reporting cases of GWD in 2003 were: Benin (30 cases), Burkina Faso (203 cases), Cote d'Ivoire (42 cases), Ethiopia (28 cases0, Mali (829 cases), Mauritania (13 cases), Niger (293 cases), Togo (669 cases), and Uganda (26 cases).

Asia is now free of the disease. Transmission of GWD no longer occurs in several African countries, including Kenya, Senegal, Cameroon, Chad, and Central African Republic. No locally acquired cases of disease have been reported in these countries in the last year or more. The World Health Organization has certified 168 countries free of transmission of dracunculiasis, including four formerly endemic countries: Pakistan (in 1996), India (2000), and in Senegal and Yemen (in 2004).

Who is at risk for infection?

Anyone who drinks standing pond water contaminated by persons with GWD is at risk for infection. People who live in villages where the infection is common are at greatest risk.

Is Guinea worm disease a serious illness?

Yes. The disease causes preventable suffering for infected persons and is a heavy economic and social burden for affected communities.

Is a person immune to Guinea worm disease once he or she has it?

No. Infection does not produce immunity, and many people in affected villages suffer disease year after year.

How can Guinea worm disease be prevented?

Because GWD can only be transmitted via drinking contaminated water, educating people to follow these simple control measures can completely prevent illness and eliminate transmission of the disease.

- Drink only water from underground sources (such as from borehole or hand-dug wells) free from contamination.
- Prevent persons with an open Guinea worm ulcer from entering ponds and wells used for drinking water.
- Always filter drinking water, using a cloth filter, to remove the water fleas.

Additionally, unsafe sources of drinking water can be treated with an approved larvicide, such as ABATE®*, that kills water fleas, and communities can be provided with new safe sources of drinking water, or have existing dysfunctional ones repaired.

** Use of trade names is for identification only and does not imply endorsement by the Public Health Service or by the U.S. Department of Health and Human Services.*

This fact sheet is for information only and is not meant to be used for self-diagnosis or as a substitute for consultation with a health care provider. If you have any questions about the disease described above or think that you may have a parasitic infection, consult a health care provider.

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